

7       A. providing a hydrogen containing fuel to the anode  
8       and an oxygen containing oxidant to the cathode  
9       to generate, for a first period of time, an  
10       electric current within the external circuit for  
11       operating the primary electricity using device,  
12       the cell operating conditions being selected such  
13       that, during the course of said first period of  
14       time, the cathode potential is maintained above  
15       0.66 volt and cell performance decreases;

16       B. regenerating the cell after Step A by  
17       a) providing a hydrogen containing fuel to the  
18       anode while operating said cell using procedures  
19       selected to reduce the cathode potential to below  
20       0.50 volt, said procedures including the steps of  
21       i) disconnecting the primary electricity using  
22       device from the external circuit and leaving the  
23       circuit open, and ii) stopping the flow of  
24       oxidant to the cell and allowing the oxidant  
25       remaining within the cell to be consumed at the  
26       cathode; and, b) maintaining the cathode  
27       potential below the said 0.50 volt for a second  
28       period of time sufficient to essentially restore  
29       the cell performance decrease which occurred  
30       during the course of Step A; and,

31       C. sequentially repeating Steps A and B to reduce  
32       the decrease in cell performance over time.

1       21. A method of operating a fuel cell having a PEM as the  
2       electrolyte, an anode on one side of the PEM, a  
3       cathode on the other side of the PEM, an external  
4       electric circuit connecting the anode and cathode,

5 and a primary electricity using device within the  
6 external circuit, comprising the steps of

7 A. providing a hydrogen containing fuel to the anode  
8 and an oxygen containing oxidant to the cathode  
9 to generate, for a first period of time, an  
10 electric current within the external circuit for  
11 operating the primary electricity using device,  
12 the cell operating conditions being selected such  
13 that, during the course of said first period of  
14 time, the cathode potential is maintained above  
15 0.66 volt and cell performance decreases;

16 B. regenerating the cell after Step A by

17 a) providing a hydrogen containing fuel to the  
18 anode while operating said cell using procedures  
19 selected to reduce the cathode potential to below  
20 0.50 volt, said procedures including the steps of  
21 i) disconnecting the primary electricity using  
22 device from the external circuit, and ii) with an  
23 auxiliary resistive load connected across the  
24 cell, stopping the flow of oxidant to the cell  
25 and allowing the oxidant remaining within the  
26 cell to be consumed at the cathode creating a  
27 current flow through the auxiliary resistive  
28 load; and, b) maintaining the cathode potential  
29 below the said 0.50 volt for a second period of  
30 time sufficient to essentially restore the cell  
31 performance decrease which occurred during the  
32 course of Step A; and,

33 C. sequentially repeating Steps A and B to reduce  
34 the decrease in cell performance over time.

In compliance with 37 CFR 1.173(c), attached hereto is a statement of status and support for claims 20 and 21.

Respectfully submitted,

Stephen E. Revis  
Reg. No. 26,609

A handwritten signature in black ink, appearing to read 'Stephen E. Revis', with a long horizontal flourish extending to the right.

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